

**Ryte
Data.....**

210 MOUNTAIN STREET
HALIBURTON, ONTARIO K0M 1S0
CANADA

Dedicated to 99/4A and 9900 Computer Systems **VER 18**
1986
DECEMBER

R/D COMPUTING NEWSLETTER

MERRY CHRISTMAS AND HACKER NEW YEAR 1987 !

During the past four months we ran a programme to encourage users to subscribe to this publication. We are happy to report that the results from this have been extremely positive! For the 1986 Incentive Promotion THE TEN LUCKY WINNERS ARE:

M. SHAUGHNESSEY, Florida -
NAVARONE CARTRIDGE EXPANDER

UPPER PINELLAS USER GROUP,
Florida - EXTENDED BASIC II PLUS

KITLARU BENY, Israel - LIFETIME
SUBSCRIPTION W/ DISK

RONALD PASWINSKI, Indiana -
MICROSURGEON

LOUISE DYER, Ontario -
MINIMEMORY PROGRAMMING MODULE

R.K HALVORSON, Texas - GPL
ASSEMBLER PACKAGE.

DONAT FILION, Quebec - SUPER
CLOCK SUPPORT/ INTERN/ BASIC COMPILER

LOUIS CHAUSE, Florida - Starship
PEGUSUS by NOT POLYOPTICS

JOHN ENG, Montana - 32K MEMORY
EXPANSION UNIT.

RICHARD STEINER, Florida - NIGHT
MISSION by MILLERS GRAPHICS

These are the folks who entered
and won the product incentive draw
held on December 10th, 1986 in

Haliburton. Names were drawn at random and assigned prizes according to two criteria: the order drawn for each product and/or prize preference.

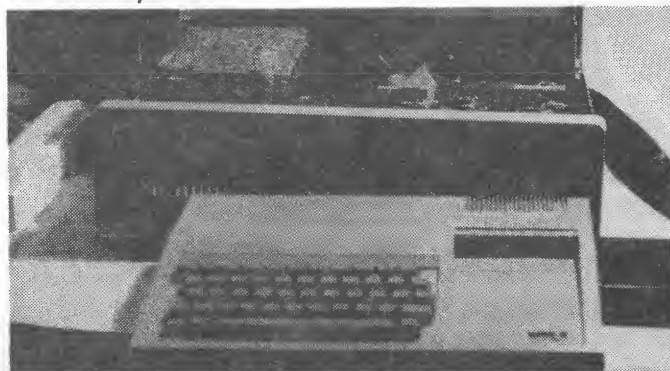
These people all responded to our mailing list / subscription incentive.

In fact, this worked so well, we're going to do it again this year. The product lineup will be different.

We will announce the prizes later this quarter according to the response we receive for a repeat performance. Another idea is a programming contest in Extended Basic and Assembly. Takers?

It was very interesting to note that the majority of entrants indicated the Extended Basic II PLUS module from Mechatronic as the preferred choice.

So this year, inform your friends and your group that we are "doing it again" this year (1987) even better and bigger. All that has to be done is send us a postcard with their name and address. As before, those that subscribe to R/D COMPUTING are entered automatically. We will require a reader survey to be completed by all entries for our database. Encourage your friends and associates to send in their name and subscription.





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TRIO 'PLUS' STANDS FOR EXTRA VALUE IN SOFTWARE

TRIO+ SOFTWARE PRODUCTS

!! DISK ENVELOPER 2 !!

Look what we did to the Disk Envelope Designer program! We listened to your feedback, and the result is the NEW Disk Envelope Designer 2!

IMPROVED SPEED! Now your setup information will be stored on the Enveloper disk and will be your defaults at all times. (Data may be changed.)

CHOOSE YOUR PRINTOUT FORMAT! Make an envelope or a directory listing without the envelope outline! Print one format, then go back and print a different format WITHOUT ACCESSING THE DISK AGAIN! Both the envelope and the directory listing may be printed either WITH OR WITHOUT COMMENTS, giving you up to FOUR DIFFERENT FORMATS PER DISK!

EASY TO USE! Options are selected from easy to follow menus - use only the up and down arrows! The only information to type in is the absolute minimum required to run the program. MORE! All comment files are automatically given the same name as that of the disk being cataloged. No need to remember the comment file name!

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PRINTER COMPATIBILITY! Allows you to make your printouts in compressed or PICA size type! Should work with any printer!

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Your computer can sing! TE-2, Speech, Disk System required. Helps you understand and use allophones. Input, edit and play back your favorite songs (words and music). High quality speech allows the TI to believably sing your favorite songs. Expands your knowledge of allophonic use of speech painlessly, a lot of fun!

Written by BARB BERG, author of many publicized articles on using the TI.

Price: \$6.00 + \$1.00 S/H.

MORE ON POWER SUPPLY:

Extended from the article by Brian Kirby in the October issue.

To continue where we left off with the PE Box modification: please note that the design was also intended to replace the power supply in the console at the same time. This allows you to have a cooler console - less heat stress on internal components and you could even use the old console power supply to run another disk drive. Follow the diagrams and instructions below to complete the modification.

Check the wiring on your 15 pin "d" plug. You need to construct another 15 pin connector - male - with 4 wires approx. 15 - 30 inches long. After making the cable, hook it up to your system and turn the P-Box on. Use a voltmeter to confirm wiring and mark each wire for voltages. Hookup is EXTREMELY SENSITIVE at this point. If you wire a power supply to the wrong power bus in the 99/4A computer, it will take its last dying gasp and smoke. Damage will be extensive - beyond repair. Semiconductors do not like reverse voltages. They usually conduct very heavily and burn. I cannot overstress this point!!!

1. Open the 99/4A console by removing all the bottom screws. You will see the power supply beside the keyboard and below the motherboard. You will see four wires connecting from the supply to the main motherboard. With everything resting safely, turn on the power and check *****

the voltages where the wires connect to the power supply. Mark these very carefully. Turn off the power. Connect the power cable from the P-Box to these wires: again noting correct hookup [+12 to +12, +5 to +5, -5 to -5, ground to ground]. Remove the power supply and keep it for future use.

2. Route the cable outside the existing hole where the power plug used to connect.

3. Take the big step. Hook the

computer up to the P-Box. Power up the system. All should be well. If you do not get the title screen, shut down immediately. Check connections and pray nothing is burned. You should have no problems at this point if you followed carefully, maintained correct wiring and checked your work.

4. If all is well, shut down the system. I left the original power switch in the 4A computer. I glued it in the ON position. You may wish to take it out and install a system reset switch. I highly recommend this for resetting the computer after a lockup so you do not have to shut down the entire system. You can also use a Widget. Put your case back on and happy computing.

The best benefit is the lack of heat from the console and the greater power available. Normally, when I use my computer I am on it for two hours. It is strange not to feel heat from the cartridge port area. I put two half height drives in the P-Box with no problems. If you use the parts I recommended, you will not be able to destroy the power supply. They are internally limited and the P-Box transformer will burn up before the regulators. The P-Box can handle a very heavy load. It was designed to power 8 cards and a full power disk drive.

These are checks for current draw on the computer console:

+12V draws 240 mA

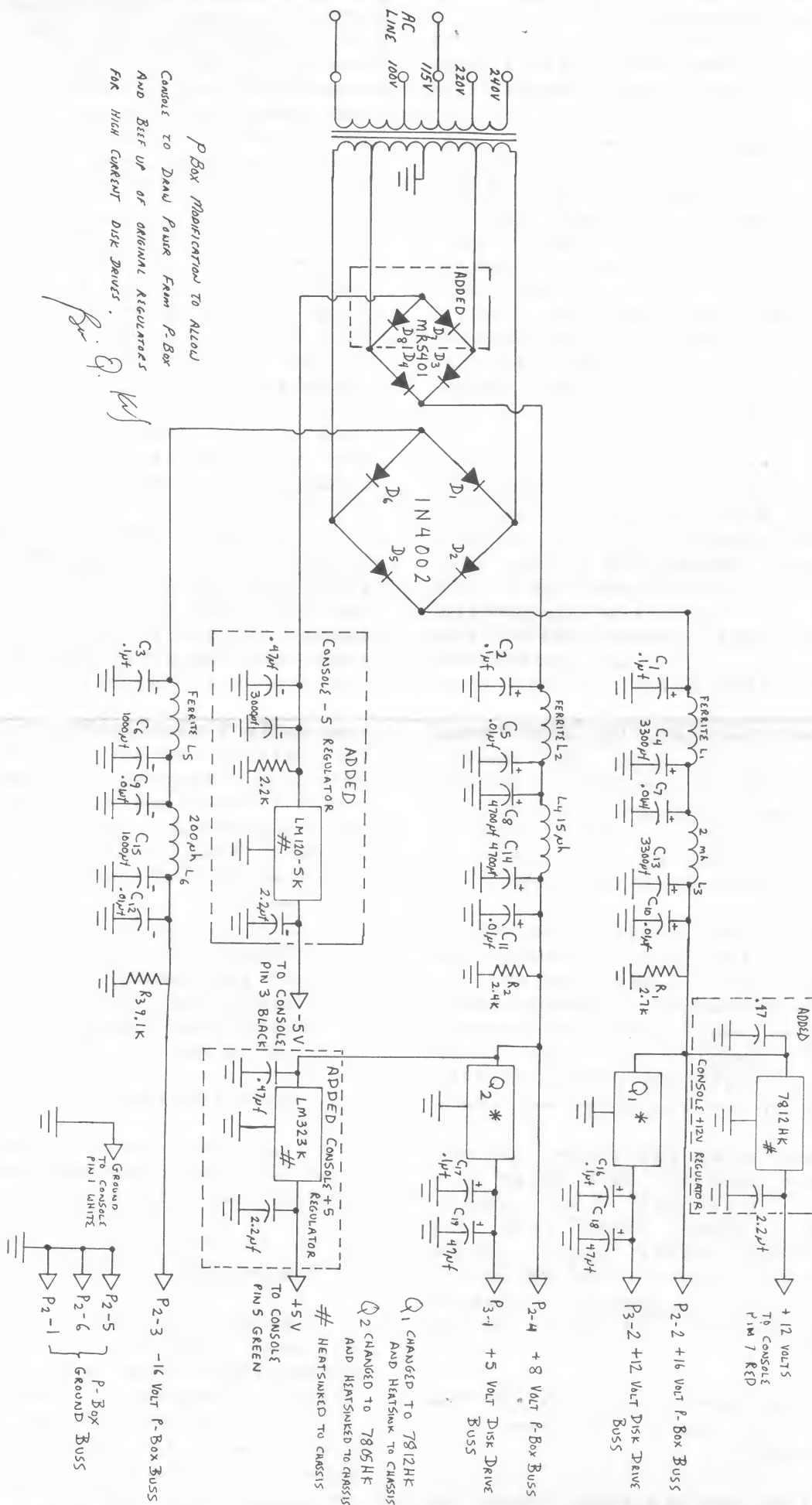
+5V draws 940 mA

-5V draws 132 mA

As usual, work carefully. All your work and your modifications are at your own risk.

RUMOURS:

A well founded rumour is that Millers Graphics is removing the GRAMKRACKER from the market. The stated reasons include: MG's inability to deliver the product on time, lack of sufficient orders to make the product profitable and perhaps, the competition for GRAM



devices. With the talent that has gone into the utility features of the GRAMKRACKER, this seems like a hasty judgement call on the part of MG.

The other factor which may come into play here is the (also WELL rumoured) IBM compatibility project. A hardware device to run MS-DOS programs such as Lotus 1-2-3 or Flight Simulator (that Craig Miller is supposed to be working on) is to be announced in the first quarter 1987. This project is to be developed in conjunction with another 'un-named' company on the project. It will remain a mystery as to the details - if and when a new product is unveiled. Some people have termed the entire project "vapourware".

Other folks have expressed concern (et al) that MG is taking 'us' into the IBM PC fold... whether we like it or not. Perhaps MG will move on to strictly PC software.

On the other hand, I "defected" to the MS-DOS world several years ago. Two (and more!) systems just happen to serve different areas without a great deal of conflict. I even find myself fondly eyeballing the MACINTOSH for the "PageMaker" software. Now is this heresy or what? Who has the guts to talk about other computers in a TI related publication? Or is it sheer nerve?

I can also see certain levels of "politics" come into play here: which I feel are detrimental to the continued support of our computer. Many people like to play this game... energy better spent in pursuit of excellence!

DEFLECTIONS:

Another defection of note is Randy's Rumour Rag of the SOURCE. I'm not sure if Randy is leaving the \$RAG but the info says that Mr. Ainsworth has gone onto another machine. I am not sure how this affects the public view of the 4A by Source subscribers, but it seems unnecessary to abandon one perfectly good machine for the charms of another. Any perceived "conflict" is self-induced delusion.

To a certain extent, the public

playing of the support efforts result in a perception by many that our orphan is fading fast. In fact, many products are NOT produced due to the level of "returns" obtained. Examine the market forces at work for computers 'in production'. A steady stream of new hardware and software is available from numerous vendors.

For the TI 99/4A to even have ANY support options is a phenomena unlike anything else in the computer industry.... IE: to develop and introduce a product for a declining market is courting full economic suicide by most standards.

It has been noted by several people that not much new software is being introduced right now. RIGHT! We do know the reason why - which only you can turn around. Write your favourite publisher with an order today. Make a new Year Resolution to support your support companies.

NEGLIGENCE:

We have fallen down on the review category recently... there are some very nice products out that deserve more than just an ad here and there.

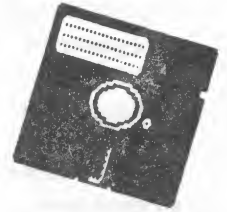
Promises, promises. We will review these programs in the immediate future for your edification.

ASGARD SOFTWARE has done a superior job this past year introducing new software packages... all priced far below value! I would like to suggest that you write for a catalogue with an order for a new piece of software that you could use. Two newest programs, "FONTWRITER" by Peter Hodie and "TOTAL FILER" by Warren Agee are some of the marvelous works being written for the TI 99/4A. Fontwriter allows you to combine TI Artist and TI Writer files together for graphics with text. Totalfiler is a program to track and maintain your text files. Asgard Software, PO Box 10306, Rockville, MD 20850. (301) 345-2492

JOY PAINT 99 by Great Lakes



RAPID COPY



If your tired of waiting for your disk manager to copy or format your disks, Rapid Copy is here to help you. Rapid Copy is the only turbo copier specifically designed to take full advantage of the Myarc, CorComp, and Texas Instruments disk controller cards.

How fast is Rapid Copy? Copying a double-sided, double-density disk takes only 1 minute and 17 seconds, which includes formatting the target disk! On average Rapid Copy is six times faster than the disk copy functions of the Myarc, CorComp, and DM1000 disk managers.

Rapid Copy is simple to use, fully menu driven, and allows a multitude of copy and format options. Not only is Rapid Copy endorsed by Myarc Inc. for use with its disk controller card, a new modified version of the Myarc disk manager (included) allows you to load it from within its utility option for your convenience!

Rapid Copy is available for only \$14.95. Requires 32K memory expansion, disk drive system consisting of at least one floppy disk drive, and either the Extended Basic, Editor/Assembler, or TI-Writer command module.

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NEW FROM MONTY SCHMIDT: **GPL LINKER V1.1 Run Time Version**

GPL Linker is an ingenious program that places the power of Graphics Language Programming (GPL) at your command. No extra hardware is required beyond standard 32k and disk system. In short, Linker creates runnable program files from compressed (or uncompressed) GPL Assembler object files. You can then run these programs with "Option 5 Run Program Files" of the Editor Assembler Module.

Up to 24k GPL programs can be developed and run on standard 32k systems. Included in the run time version are two demonstration programs and "CONVERT," a public domain conversion program that converts MS BASIC statements to TI BASIC statements.

Price: \$21.00 CDN funds \$15.00 US funds.

now \$49.95
w/Linker \$59.95
plus Intern \$69.95
add \$3 shipping

ENHANCED **GPL Assembler V2.1** **NOW with high memory loader package**

UNLOCK ALL THE SECRETS! New GPL Assembler Version 2.1 available exclusively through RYTE Data.

This program provides the power to write, edit and assemble true GPL programs for the TI 99/4A. Create code that accesses console operating system routines directly. Develop programs that use the GPL Interpreter and all the features of the TI 99/4A.

This package includes the GPL Assembler disk, printed documentation, GPL tips and hints, update support service and commented GROM/ROM listings (with the book "INTERN"). An example for a command module type GPL program is included with source, object and list files on disk.

Requires: 32k memory, disk drive(s), TI Editor Assembler package. Printer/RS-232 recommended.

GPL price Reduction

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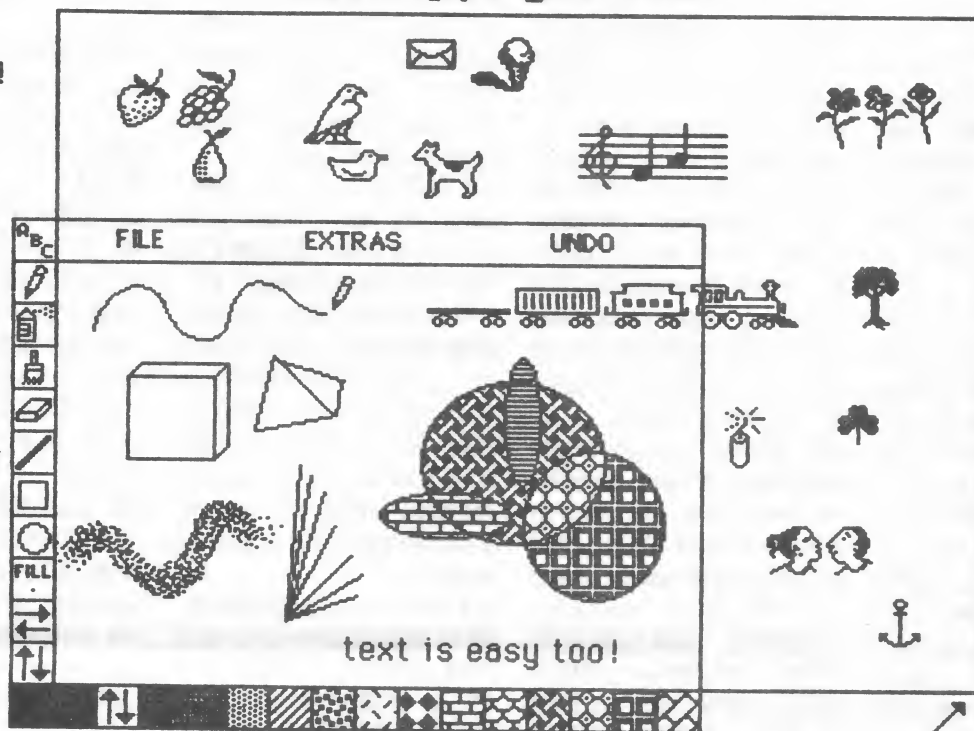
NEW! FROM THE CREATORS OF BANNER '99 AND EXTENDED BUSINESS GRAPHS.....

JOY PAINT '99

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ENTIRELY
JOYSTICK
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USE TOOLS,
SUCH AS
PENCIL,
ERASER,
PAINT BRUSH
CIRCLE, OVAL
BOX, LINE &
TEXT!



92% MORE
GRAPHICS
SPACE THAN
PREVIOUS
TI GRAPHICS
PROGRAMS!!

THE SCREEN
ACTS LIKE
A WINDOW!

REQUIRES

TI-99/4A, 32K,
Disk drive,
Joy Stick, and
one of the
following:

Extended Basic,
Editor/Asm,
or Mini-Memory.

Epson compatible
printer such as
Gemini 10x or
15x, TI impact,
etc. is optional.

(soon other
printers too!)

Our all new 100% assembly language program features graphic capabilities found in no other software application. Use JOY PAINT '99 to create signs, charts, diagrams, advertisements, or graphics of any type. JOY PAINT '99 is sophisticated, yet simple to use. In fact, the user never needs to touch the keyboard; all functions are joystick controlled. There are no complicated function keys to remember, just simple on-screen TOOLS. JOY PAINT '99 allows circles and ovals to be drawn with incredible speed and precision. Lines, boxes and rectangles can also be quickly drawn! Additionally, the FILL, PAINT BRUSH, and SPRAY-CAN tools allow filling and painting in any one of twenty six selectable PATTERNS! JOY PAINT '99 also feature 8 different brush shapes!

A 'pull down window' contains many more features that make creating and manipulating graphics fun and easy. Any object can be INVERTED, ROTATED, FLIPPED VERICALLY or HORIZONTALLY, COPIED, MOVED, OR STORED ON A CLIPBOARD! A MAGNIFY feature allows graphics to be increased. A ZOOM OPTION, called FATPIXELS, allows fine single dot editing.

JOY PAINT '99 also contains dozens of features not found in any other graphics application. For instance an 'UNDO' feature that instantly 'takes back' the last portion of work the user performed! Its DIRECTORY feature can catalog your diskettes! JOY PAINT '99 CONSERVES DISK SPACE, by not saving the redundant blank areas in your graphics! Printouts can be made directly in normal, or double size, and in single or double density! Be among the first to experience this unique and practical program; ORDER YOURS TODAY.....\$49.95 POSTPAID.

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TIPS FROM THE TIGERCUB

#38

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Over 130 original programs in Basic and Extended Basic, available on cassette or disk, only \$3.00 each plus \$1.50 per order for PPM. Entertainment, education, programmer's utilities. Descriptive catalog \$1.00, deductible from your first order.

Tips from The Tigercub, a full disk containing the complete contents of this newsletter Nos. 1 through 14, 50 original programs and files, just \$15 postpaid. Tips from the Tigercub Vol. 2, another diskfull, complete contents of Nos. 15 through 24, over 60 files and programs, also just \$15 postpaid.

* Tips from the Tigercub *
* Vol. 3 is now ready. *
* Another 62 programs, *
* routines, tips, tricks. *
* from Nos. 25 thru 32. *
* Also \$15 postpaid. Any *
* two Tips disks \$27 or *
* all 3 for \$35 postpaid. *

Nuts & Bolts (No. 1), a full disk of 100 Extended Basic utility subprograms in merge format, ready to merge into your own programs. Plus the Tigercub Menuloader, a tutorial on using subprograms,

and 5 pages of documentation with an example of the use of each subprogram. All for just \$19.95 postpaid.

Nuts & Bolts No. 2, another full disk of 100 utility subprograms in merge format, all new and fully compatible with the last, and with 10 pages of documentation and examples. Also \$19.95 postpaid, or both Nuts Bolts disks for \$37 postpaid.

Tigercub Full Disk Collections, just \$12 postpaid! Each of these contains either 5 or 6 of my regular \$3 catalog programs, and the remaining disk space has been filled with some of the best public domain programs of the same category. I am NOT selling public domain programs - my own programs on these disks are greatly discounted from their usual price, and the public domain is a FREE bonus!

TIGERCUB'S BEST, PROGRAM-TUTOR, PROGRAMMER'S UTILITIES, BRAIN GAMES, BRAIN TEASERS, BRAIN BUSTERS!, MANEUVERING GAMES, ACTION REFLEX AND CONCENTRATION, TWO-PLAYER GAMES, KID'S GAMES, MORE GAMES, WORD GAMES, ELEMENTARY MATH, MIDDLE/HIGH SCHOOL MATH, VOCABULARY AND READING, MUSICAL EDUCATION, KALEIDOSCOPES AND DISPLAYS

For descriptions of these send a dollar for my catalog!

I have discovered a rare bug in the 28-Column Converter, published in Tips #18, which will cause an I/O 25 ERROR if the very last line of the program being converted happens to have exactly 80 characters. You can fix it by adding a line -
215 IF EOF(1)=1 THEN 260

There is also a rare bug in the SIDEWAYS subroutine on my Nuts & Bolts #2 disk, which prevents turning some

redefined character sets sideways. If you are one of those who BOUGHT that disk from me, you can fix it by changing the L=LEN(B\$) in line 21639 to L=64.

I was in too much of a hurry to go fishing when I put the last couple of Tips together. In the Gordian Knot in Tips #35, I left out some essential instructions. Please add -
131 DISPLAY AT(11,1):"When you cross your track,";"press O to go over, U to go";;"under, C to go across."

To make that fit, you will have to change the DISPLAY AT in line 130 to (8,1), in line 140 to (15,1) and in line 150 to (20,1), also the ACCEPT At in 160 to (20,11). And this change will prevent a lockup when you reach a border -

```
200 D=D-1 :: IF ABS(D-D2)=2
OR R+(D-1)=0 OR R-(D-3)=25 O
R C+(D-4)=2 OR C-(D-2)=31 TH
EN 180 :: GOSUB 510 :: IF D<
>D2 THEN GOSUB 450
```

I wrote the dulcimer music in Tips #36 in Basic, but I forgot to test it in Basic. It actually runs much better in Extended Basic, but will run fairly well in Basic if you delete the delays in lines 280 and 300.

If you liked the ESCHER ART in Tips #37, these modifications will improve it considerably -

```
110 DISPLAY AT(12,1):"Press
-": " Q for new pattern": "
B to change background": " F
to change foreground": " R to
reverse colors": " : "Any ke
y to start"
280 A=INT(6*RND+3):: H=INT(2
4/A):: RX=24-H*A :: HC=INT(2
8/A):: CX=28-HC*A :: W=ABS(H
C/2=INT(HC/2))-(RX>0):: DIM
M(8,8):: FOR P=1 TO A
330 IF K<>66 THEN 346
340 BC=BC+1+(BC=16)*15 :: IF
BC=F THEN 340 ELSE 347
```

```
346 IF K<>70 THEN 360 :: F=F
+1+(F=16)*15 :: IF F=BC THEN
346
```

```
347 FOR S=7 TO 14 :: CALL CO
LOR(S,F,BC):: NEXT S :: GOTO
310
```

```
350 ! **DELETED LINE **
360 IF K<>ASC("R")THEN 310 :
: T=F :: F=BC :: BC=T :: GOT
O 347
```

```
600 GOSUB 900 :: FOR T=1 TO
A :: DISPLAY AT(R-1+T,C):M$(
V,T):: NEXT T :: NEXT C
601 IF CX=0 THEN AA=A :: GOS
UB 800
```

```
605 GOSUB 1000 :: NEXT R
606 IF RX=0 THEN 610
```

```
607 GOSUB 1000 :: FOR C=1 TO
A*HC STEP A :: GOSUB 900 ::
FOR T=1 TO RX :: DISPLAY AT
(R-1+T,C):M$(V,T):: NEXT T :
: NEXT C
```

```
608 IF CX=0 THEN AA=RX :: GO
SUB 800
```

```
800 GOSUB 900 :: FOR T=1 TO
AA :: DISPLAY AT(R-1+T,C):SE
$(M$(V,T),1,CX):: NEXT T :
: RETURN
```

```
900 V=V+1+(V=4)*4 :: RETURN
1000 V=V+W :: V=V+(V>4)*4 ::
RETURN
```

I had a letter from a teacher who was using the PRK module to keep student grades, and wanted to know how to average them. It can be done, but is so impractical that I wrote this program. While I was at it, I speeded up the loading and saving to cassette greatly by converting the grades to an ASCII string and combining the student's name and all grades into one record.

```
100 DIM N$(50),T(50,20)
110 CALL CLEAR
120 PRINT " TEACHER'S
HELPER": : :
130 REM - by Jim Peterson
140 PRINT "(1)CREATE A FILE?
": "(2)ADD TO FILE?": "(3)LOAD
A FILE?": "(4)SAVE A FILE?":
"(5)PRINT A FILE?"
150 PRINT "(6)CORRECT A FILE
?": "(7)COMPUTE AVERAGES?": "(
8)QUIT?"
160 CALL KEY(0,K,S)
```



```

170 IF (S=0)+(K<49)+(K>50)TH
EN 160
180 ON K-48 GOTO 170,250,610
,800,380,990,1120,1510
190 X=0
200 INPUT "SUBJECT? ":S$
210 GOSUB 1370
220 INPUT "TEST #? ":N
230 GOSUB 1440
240 GOTO 140
250 PRINT :;:"(1)ADD NAMES?"
:;(2)ADD GRADES?"
260 CALL KEY(0,K,S)
270 IF (S=0)+(K<49)+(K>50)TH
EN 260
280 ON K-48 GOTO 290,310
290 GOSUB 1370
300 GOTO 140
310 INPUT "TEST #? ":Q
320 IF T(1,Q)=0 THEN 350
330 PRINT :;"TEST #";STR$(Q
);" ALREADY RECORDED"
340 GOTO 140
350 N=Q
360 GOSUB 1440
370 GOTO 140
380 CALL CLEAR
390 PRINT "OUTPUT TO:"(1)SC
REEN?:"(2)PRINTER?"
400 CALL KEY(0,K,S)
410 IF (S=0)+(K<49)+(K>50)TH
EN 400
420 IF K=49 THEN 460
430 INPUT "PRINTER DESIGNATI
ON? ":P$
440 OPEN #2:P$
450 F0=2
460 PRINT "PRESS ANY KEY TO
PAUSE":
470 PRINT #F0:S$:
480 FOR J=1 TO X
490 PRINT #F0:"N$(J)&" ";T
AB(10);
500 FOR K=1 TO HN
510 PRINT #F0:T(J,K);
520 NEXT K
530 CALL KEY(0,K,S)
540 IF S<>0 THEN 530
550 NEXT J
560 PRINT #F0
570 IF F0=0 THEN 140
580 F0=0
590 CLOSE #2
600 GOTO 140
610 PRINT :;:"(1)CASSETTE?":
(2)DISK?"
620 CALL KEY(0,K,S)
630 IF (S=0)+(K<49)+(K>50)TH
EN 620
640 ON K-48 GOTO 650,670
650 OPEN #2:"CS1",INPUT ,FIX
ED
660 GOTO 690
670 INPUT "FILENAME? DSK":F$
680 OPEN #2:"DSK"&F$,INPUT
690 INPUT #2:X,HN,S$
700 FOR J=1 TO X
710 INPUT #2:K$
720 N$(J)=SEG$(K$,1,POS(K$,C
HR$(255),1)-1)
730 K$=SEG$(K$,POS(K$,CHR$(2
55),1)+1,255)
740 FOR K=1 TO HN
750 T(J,K)=ASC(SEG$(K$,K,1))
-50
760 NEXT K
770 NEXT J
780 CLOSE #2
790 GOTO 140
800 PRINT :;:"(1)CASSETTE?":
(2)DISK?"
810 CALL KEY(0,K,S)
820 IF (S=0)+(K<49)+(K>50)TH
EN 810
830 ON K-48 GOTO 840,860
840 OPEN #2:"CS1",OUTPUT,FIX
ED
850 GOTO 880
860 INPUT "FILENAME? DSK":F$
870 OPEN #2:"DSK"&F$,OUTPUT
880 PRINT #2:X:HN:S$
890 FOR J=1 TO X
900 K$=""
910 FOR K=1 TO HN
920 K$=K$&CHR$(T(J,K)+50)
930 NEXT K
940 PRINT #2:N$(J)&CHR$(255)
&K$
950 K$=""
960 NEXT J
970 CLOSE #2
980 GOTO 140
990 CALL CLEAR
1000 INPUT "STUDENT'S NAME?
":Q$
1010 FOR J=1 TO X
1020 IF N$(J)=Q$ THEN 1060
1030 NEXT J
1040 PRINT :;"NAME NOT FOUN
D":
1050 GOTO 140
1060 INPUT "CORRECT WHICH TE
ST? (0 TO QUIT) ":C
1070 IF C=0 THEN 1110
1080 PRINT :;N$(J);"'S TEST
#";STR$(T(J,C)):
1090 INPUT "CORRECT TO? ":T(
J,C)
1100 GOTO 1060
1110 GOTO 140
1120 CALL CLEAR
1130 PRINT "OUTPUT TO:"(1)S
CREEN?:"(2)PRINTER?"
1140 CALL KEY(0,K,S)
1150 IF (S=0)+(K<49)+(K>50)T
HEN 1140
1160 IF K=49 THEN 1200
1170 INPUT "PRINTER DESIGNAT
ION? ":P$
1180 OPEN #2:P$
1190 F0=2
1200 PRINT #F0:S$
1210 FOR J=1 TO X
1220 PRINT #F0:N$(J);" AVERA
GE ";
1230 FOR K=1 TO HN
1240 TT=TT+T(J,K)
1250 NEXT K
1260 AV=TT/HN
1270 TAV=TAV+AV
1280 PRINT #F0:AV
1290 TT=0
1300 NEXT J
1310 PRINT #F0:"CLASS AVERAG
E ";TAV/X
1320 TAV=0
1330 IF F0=0 THEN 1360
1340 F0=0
1350 CLOSE #2
1360 GOTO 140
1370 PRINT :;"STUDENT'S NAM
ES - ":type END when finish
ed":
1380 X=X+1
1390 M$="NAME #"&STR$(X)&" "
1400 INPUT M$:N$(X)
1410 IF N$(X)<>"END" THEN 13
80
1420 X=X-1
1430 RETURN
1440 FOR J=1 TO X
1450 M$=N$(J)&"'S GRADE? "
1460 INPUT M$:T(J,N)
1470 NEXT J
1480 IF N<HN THEN 240
1490 HN=N
1500 RETURN
1510 END

```

20, 26, 27, 31, 32, or 44 as a null string (a blank), and will drop these characters at the end of a string? And ASCII 32 will be dropped at the beginning or end of a string. And ASCII 0 within a string, or ASCII 34 anywhere, will crash, while ASCII 44 within a string will lose the rest of the string. I should have known what ASCII 0, 32 (the space), 34 (quotes) and 44 (comma) would do, but why the others?

LINPUT will accept anything, of course, but I wanted to keep this in BASIC for the teachers who are struggling along without the XBasic module or disk drive.

Chick De Marti published in LA 99ers TOPICS the surprising discovery that PRINT USING and DISPLAY USING can read the IMAGE format from a variable, array or string!

Which led me to some fooling around -

100 !PRINT USING DEMO by Jim Peterson, based on a discovery by Chick De Marti

```

110 CALL CLEAR :: RANDOMIZE
:: CALL SCREEN(5):: FOR S=2
TO 14 :: CALL COLOR(S,S,S)::
NEXT S
120 N=INT(13*RND+1):: C$=CHR
$(8*N+32-(N=4)*11)
130 FOR J=N TO 12 :: A$=RPT$
(" ",J)&"&"&RPT$(" ",26-J*2)
&"$" :: PRINT USING A$;C$,C$
:: NEXT J
140 FOR J=12 TO N STEP -1 ::
A$=RPT$(" ",J)&"&"&RPT$(" ",
26-J*2)&"$" :: PRINT USING
A$;C$,C$ :: NEXT J :: GOTO 1
20

```

Here is one last Tigercub challenge. What is the longest possible one-liner? And what is the longest possible one-liner that actually does something?

MEMORY FULL

Jim Peterson

The reason that 50 is added to the value in line 920, before saving, and subtracted again in line 750 after loading, is because of a quirk of the computer that I don't recall seeing in print anywhere. Did you know that INPUT will read a string beginning with ASCII 0, 2, 4, 7, 10, 12, 14, 18,

R/D COMPUTING - 1986

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NOTICE: If Two or more 32K memories are ordered with options you must state which options you want on each expansion unit individually. ONLY THREE OPTIONAL BANKS PER UNIT MAX. (Optional software is considered as an optional bank.)

Software is a GREAT graphics program. The closest thing to 'intuitive' art on the computer yet! This program uses an icon interface for all drawing commands on-screen with your joystick. Other utilities are accessed with pull down menus. Great Lakes Software, 804 E. Grand River Ave., Howell, MI 48843.

PRBASE by William Warren is one of the best (if not THE best) database programs available for the TI. Written in 100% assembly, with very fast search and find options, makes the program both swift and usefull. Being a freeware title makes this even more attractive. Send \$10.00 to William Warren, 2373 Ironton Street, Aurora, CO 80010 to receive a copy. Find it usefull? Send Mr. Warren another \$40 for your gratitude!

QUALITY 99 has produced a package for owners of the Foundation 128k card which is well worthwhile. The first part, a replacement PROM for the card allows you to use the card as a true 127 file RAMDISK - rather than the 3 file limitation imposed. The second part of the package "QS RAMDISK" is a utility that sets up the card, has a catalog program and a transfer program to load files from a floppy to the Foundation 128k card. This last part of the program is very impressive - it will transfer the entire contents of a disk (SS/SD - 90k) in a few seconds. The only limitation found is that you can no longer catalogue the card from TI Writer.

Numerous Fairware titles deserve mention... but we're running short on space here. Also running short on the deadline.

THE YEAR IN REVIEW:

This has been a very special year for the TI 99/4A community. Many new products, both hardware and software, were introduced. Consider the products introduced for the IBM PCjr or the ADAM or the VIC 20 or the Timex computers. See any?

An enormous amount of energy was

expended on the black hat / white hat debates... which can be spent more wisely without all the backbiting.

Predictions were made: some accurate others not so accurate. The "best" crystal ball gazing was done by John Keown in the pages of Micropendium with firm declarations that the Myarc machine would ship in July.

Well, it's December and no such luck! Ron Albright made the prediction that Geneve would not ship by year end... we see that he's right. No crow for you this Christmas Ron! Just deserts! Even though Myarcs' office says that they DID receive the gate arrays from Mitsushita, it does not appear that they will make year end shipment!

Millers Graphics released some great software and continued to build on the GRAMKRACKER utility programs.

Asgard Software also released lots of new software packages... enough that Asgard will obviously remain a premier publisher for the 99/4A.

One of the biggest hits was the release of 'C' for the TI... a high level programming language used in the mainstream. Clint Pulley tells me that the response was greater than expected. Many programmers added serious input to the language. New commercial programs are coming out using c's high level abilities to write fast efficient code.

A great deal of innovative hardware has come from West Germany via Mechatronic, Atronic and Elektronik Service. The GRAM Card, INTERN, GPL Assemblers, 128k memory devices, Extended Basic II plus, Mouse, EPROM programmer, ATRONIC DS/DD disk controller, MEGA RAM and multifunction cards. The problem here being one of delivery to North America.

MicroPendium, Smart Programmer/Super 99 Monthly, TI Revue, DiskAZine and Computer Shopper all continued excellent coverage of our machine.

Dozens of Trialware/ Fairware/ Shareware software packages were also brought to the TI market - with a wide range of success. Some authors reported satisfaction with the process. Many authors though have decided that the returns do not warrant the efforts.

Regardless of the viewpoint, for the continued life of our machine - this important source of software is indeed vital.

Horizon Computers' RAMDISK is another innovative product which demonstrates the power of the 99/4A. Horizon has also enjoyed a full measure of support from the TI community for a job well done. In fact, I am not aware of a similar RAMDISK product available in the mainstream computer world.

It has been a great year for the orphan... one that will indeed be remembered for the levels of innovation, support, visionary efforts and strong user group involvement around the world.

Our best bet is to continue to support these companies with encouragement, creative comments and financial patronage. That is what it takes... for the TI 99/4A and any other machine in the computer industry.

WORK FORCE:

A large reason for the erratic schedule with R/D COMPUTING has now been eradicated once and for all. Rather than holding down another career to support this endeavour, I am now able to work full time in making this publication the best technical publication in the known world.

Please, if you have run across any interesting, obscure, theoretical, novel, usefull or undocumented tech info - pass it along.

Remember, the 1986 publishing year schedule ends with the January issue. Look at your mailing label - no date after your name means your

subscription runs out NEXT issue.

Those with a date after their name subscribed late in the year - their subscription runs UP to the FIRST of the month on their subscription label. FOR EXAMPLE: 9/87 means that you must renew BY September 1st, 1987.

As the year has progressed, the support shown for R/D Computing has increased. This brought about the decision to continue publishing through 1987 and beyond. Prior to August, it was still "up in the air" as to R/D Computing 1987... Thankyou all very much.

RAVE 99 KEYBOARD

As promised, a review of the RAVE 99 "IBM" style keyboard!

Aptly named - if you find the TI keyboard less than adequate, you will 'rave' over the new keyboard.

There are two models to choose from; an 84 key version and a 101 key version. Both work and feel identical with the 101 key model using the extra keys for single stroke combinations.

The work that went into developing this unit shows. Nice box, decent manual, proper metal label on the keyboard itself, nice circuit board and the availability of "extras". No faults there. The only thing about the product that held me back (at first) was the price. After using one extensively for two months now - I'm more than sold. (I couldn't bear to part with the demo unit...).

This product really shines in programming use, word processing, spreadsheet work and on-line access with programs such as FAST TERM. In fact, it makes the TI seem like one of those fancy, expensive "other computers". In doing a great deal of work with this keyboard, I found that it took very little to get used to the new key layout. Using several other keyboards over time contributes to this, I am sure. None the less, it is a REAL pleasure to have the

Introducing the greatest thing for 99/4A computer graphics since, well, the introduction of the 99/4A!

For years TI-99/4A owners have looked longingly at programs such as Printshop (R) and Newsroom (R) for Apple, Atari and Commodore computers. We all have wished we could do the things that Fontrix (R) does on the IBM PC. Well, now there is a program for the TI-99/4A that does these things, and because of the special features of the 99/4A, does a whole lot more.

Font Writer, by J. Peter Hoddie (a master programmer — author of Pre-Scan It! and system software for the Myarc Geneve computer) makes text and graphics come truly together for the first time on the 99/4A. Font Writer will combine any TI-Writer text files, TI-Artist or CSGD fonts, and TI-Artist instances the way you want them to make an otherwise drab report, letter or article come alive!

Font Writer, like TI-Writer, is more than one program. The first program in the package is Font Editor — a program that will let you edit existing TI-Artist or CSGD fonts, or create new ones from scratch. Font Editor contains an innovative editing window, dozens of powerful menu-selectable utilities, and supports even more powerful user-defined macro drawing commands for drawing often used figures with a single command. As powerful as it is, like all Asgard products it's designed to be friendly and easy-to-use. It is so flexible that you can even edit TI-Artist instances.

The real power of Font Writer, and it's most innovative part, is the Text Formatter. This program accepts standard TI-Writer files with virtually every imbedded text formatting command supported by TI-Writer, along with many new such commands for graphics support, to allow you to integrate text fully with graphics easily. Text Formatter accepts new commands for printing text in different fonts, including pictures and other graphics, and more. This easy-to-use program is as simple to use as TI-Writer, yet does so much more.

The last, but not in any way least program in the Font Writer package is a powerful organization tool for graphics files. If you have ever tried ordering and maintaining TI-Artist fonts, slides, instances and pictures, you will later wonder why you ever tried without it.

Font Writer requires Extended BASIC, 32K, and a disk drive system. TI-Writer and TI-Artist are highly recommended. Extensive documentation by Walter Howe is included. Available for a suggested price of \$24.95 from official Asgard Software dealers, from Teledata*Guide on Compuserve (page TDG-4), by sending Source Mail to TI9720 on Source, or directly from Asgard. All major credit cards accepted.

Asgard Software

P.O. Box 10306
Rockville, MD 20850

more common dual keystrokes on one key in a logical useful format.

Being a good touch typist, I was NOT able to out-type the keyboard, PLUS the keyboard works even better due to several factors:

All the keys are in logical positions.

The "F" and "J" keys have small bumps.

The enter key is larger.

No more QUIT with FCTN = by accident.

Function keys are in a dual column.

Quote marks are shifted with the CAPS LOCK key - the joystick is not affected.

LEDs in the CAPS & NUMBER lock keys tell you what mode you are in.

The cursor control is through a logical diamond shape to the right.

HOME, page UP and page DOWN are a single keystroke in the diamond.

Numeric entry is through the keypad on the right that functions for the cursor control.

The common dual CTRL and extra keystroke is still required. The bonus here is that several combinations exist. Using the SHIFT with the FCTN keys provides the same as CTRL and keystroke. Much more efficient in many cases.

Simply marvelous.

For you programming types, the keyboard does provide for two "missing keys" which TI decoded but did not implement on their keyboard. Missing key 1 is a shifted ESCAPE; missing key 2 is shifted BREAK. You can access key 1 with the CALL KEY subprogram and in assembly for both key 1 and key 2.

For you hardware types, RAVE allows you to install a LOAD interrupt and RESET from the keyboard. Two wires run to points on the motherboard from the keyboard INTERFACE card. Simply pressing the ALT and FCTN 1 or FCTN 10 keys will either LOAD or RESET the computer. No more little buttons hiding in obscure locations.

Are there any drawbacks? Well, no... Unless you happen to be a STARTREK fanatic. That particular game did not respond properly to the keyboard. I suspect that the interpreting of keycodes done on the board were not allowing the multi-level interrupts to be processed. Having an extra console sized unit on your desk might be cumbersome - mine sits on a roll away shelf under the desk, so the 4A console is tucked behind out of sight.

With a GRAM Card in the system, the module port is no longer needed. There is the added advantage of no longer jarring the console to cause a lock up via the expansion cable. A lot of joystick work does not present a problem either if you do not 'hide' the old console too much.

RAVE 99 "IBM" style keyboard!



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Mail list stores up to 400 records. Sort by name. Search by part of last name. Print labels and listings. Entire program loaded into memory eliminating numerous disk changes. Requires TI 99/4A, XBasic, disk drive, 32k mem. Printer optional. Write: K.G. Mori, 181 Atlantic Avenue, Winnipeg, Manitoba R2W 0P7 Canada.

Where is the following subscriber:

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Two others, Yvonne Brunet of Quebec and Jim Doris of North Carolina are sought as well...



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